

**The Taunton Bay Study**  
**A pilot project in Collaborative Bay Management**

# **FINAL REPORT**

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**Executive Summary**

**Indicators**

**Mapping**

**Economic Analysis**

**Governance**

**Outreach**

**Coordinating Committee**

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**Friends of Taunton Bay**

**May 8, 2006**

## **The Taunton Bay Study**

### **Final Report**

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## The Taunton Bay Study

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Among others

## Principles of Coastal Use Management

Stakeholders who subscribe up-front to a set of principles such as these are predisposed to contribute to and support management decisions.

**1. Public Trust:** The coastal marine resources of Maine are held in trust by the State. Therefore, the primary coastal management goal is to sustain those resources for the long-term benefit of all citizens.

- Local users and managers are stewards on behalf of Maine citizens
- Use of public trust resources in the coastal management area is dependent on responsible actions by all users

**2. Ecosystem-based Management:** In contrast to single-use (or single-species) management, ecosystem-based management considers the effects of all uses on ecosystem structure and function in a given place, and on relationships between system components over time. It is not ecosystems themselves that are managed, but human behavior.

- Management decisions support the long-term sustainability of natural systems and processes
- Decisions regarding any facet of the system are recognized as affecting the whole system
- Management is both adaptive and proactive
- The economic and social vitality of human communities is considered in management decisions

**3. Information-rich Management:** Management decisions are informed by a broad range of both historical and up-to-date information provided by monitoring, research, and personal observation.

- Ecosystems are monitored and described scientifically
- Data are augmented by local experience and observations
- Trends are incorporated into management decisions
- Confidentiality of proprietary information required for management decisions is protected
- The processes by which such information is used are in the public record

**4. Integrated Land-and-Water-Use Management:** Streams, runoff, and seepage carry land-use products from a watershed into marine waters, linking the land to the sea. Coastal use management recognizes that connection, and provides a cooperative means of bringing the knowledge and responsibilities of state, regional, and local offices to bear on coastal uses and issues.

- Within state jurisdiction (out to three miles), management is coordinated throughout the subtidal marine environment, the intertidal environment, immediate coastlands, and interior coastlands to the extent of the watershed
- Management is collaborative among stakeholders and municipalities, state agencies, and federal agencies

Based on drafts of August 31, 2005, October 5, 2005, March 1, 2006; approved March 23, 2006.

## EXECUTIVE SUMMARIES

### ► INDICATORS REPORT, EXECUTIVE SUMMARY

Prepared by Steve Perrin, author of Indicators Monitoring Report

Following examples provided by Peter G. Wells of Environment Canada, and the Marine Area Characterization Project of the Quebec-Labrador Foundation, among others, Steve Perrin put together an indicators advisory panel of 9 persons who developed a prioritized list of 25 indicators of bay ecosystem health and integrity divided into six categories: species of special concern, ecosystem structure and function, toxicology, physical conditions, watershed conditions, and other indicators. These indicators were divided into 3 tiers of priority.

Publicly available data were used where possible, with the Friends of Taunton Bay taking responsibility for monitoring the rest of the indicators, often in collaboration with other agencies or groups. Five of the measures were not monitored in 2005: clam pots, dissolved oxygen, commercial landings, blue mussel assay, and nitrogen. A table listing the 25 indicators and a summary of the findings to be shared with stakeholders are shown on the following pages.

Indicators include two subpopulations of Atlantic horseshoe crabs, harbor seals (with haulouts map), American bald eagle breeding success (with map), shorebird count in Hog Bay, eelgrass spread and density (with map), weather (precipitation, wind, and air temperature), bottom temperatures in Hog and Egypt Bays, coliform scores (with map of closed flats), phytoplankton (with transparency, surface temperature, and salinity), erosion, buffers of native vegetation, septic field data derived from a recently digitized parcel map, invasive species (limited to Asian shore crab), and oyster set (with monitoring sites map). Brian F. Beal prepared a report on benthic invertebrates, and Lauren Alnwick-Pfund provided an ecohistory narrative. Cartography was done by the GIS Laboratory at College of the Atlantic.

Findings from the indicators monitored in 2005 include:

- Horseshoe crabs are holding their own in both Egypt and Hog Bays
- The harbor seal population in the bay on July 20 was estimated to be 75–80
- Out of the five eagle nests on the bay, only one had reproductive success
- Flocks of migrating shorebirds were noticeably smaller than 20 years ago
- A few eelgrass beds line the lower channel, but beds on the flats have yet to recover
- Benthic invertebrate samples in Hog Bay included no clam worms, only small blood worms
- Eight clam flats remained closed because of high coliform counts
- Transparency on calm days was generally higher than in the preceding three years
- Bank erosion was evident along the Hancock shore of Taunton River
- No Asian shore crabs were found in Egypt Bay
- May was unusually cold and windy
- 2005 was the second wettest year in 110 years of recorded measurements
- Benthic temperatures generally lagged mean daily air temperature by a few days
- The number of septic systems ringing the bay was estimated to be approximately 1,033
- Salinity gradually increased from 26 to 35 ppt in the channel from April to November
- Landings data are not available for any species taken from the waters of Taunton Bay.

# THE TAUNTON BAY STUDY: A pilot project in collaborative bay management

Indicators Working Group

PRIORITIZED INDICATORS, WITH RATIONALES FOR SELECTION

June 6, 2005









Indicator Types: **SPC**—special concern, **ESF**—ecosystem structure & function, **TOX**—toxicology, **PHY**—physical, **WS**—watershed, **OTH**—other.

• TIER 1 PRIORITY					
I. #	Indicator	Type	Rationale	Schedule	Data Source
1	Mating horseshoe crab counts Hog Bay yearly Males, Females, Total	SPC-1	This genetically distinct population is believed to live at the northerly and easterly limit of the current range of Atlantic horseshoe crabs. Sue Schaller has been collecting data since 2001, allowing trends to be detected.	Day high tide(s) during June	Maine Horseshoe Crab Survey
2	Eelgrass spread & density	ESF-1	For unknown reasons, the spread and density of eelgrass has been highly variable since the 1950s. As a primary producer, oxygenator, and provider of habitat for multiple species, eelgrass strongly influences the bay ecosystem.	Annual photo flyover	DMR, FTB
3	Benthic invertebrates	ESF-2	Invertebrates play a vital role in the intertidal food web.	Annually in fall	B. Beal, UMM (class project)
4	Clam pot study on closed flat	ESF-3	Clam pots are used to measure annual growth and predation by crabs, gulls, horseshoe crabs, allowing comparison with other regions down east.	May, November	B. Beal, UMM
5	Weather	PHY-1	Wind speed and direction, precipitation, temperature, and relative humidity are important drivers of estuarine ecosystems.	daily max/min	Ross Lane, DMR, Lamoine
6	Dissolved oxygen (DO)	PHY-2	Benthic DO in different mixing regimes (upper & lower bay) determined from drifter studies can warn of low oxygen levels.	weekly at 3 sites	FTB
7	Transparency	PHY-3	A secchi disk will be used to gauge the amount of algae and particulate matter in the water column. These data are proportional to sunlight penetration.	weekly, w. phyto. tow	FTB
8	Surface temperature	PHY-4	Surface temperature affects the growth, metabolism, and reproduction of life forms in the upper water column.	weekly, fr. phyto. tow	FTB
9	Benthic temperature	PHY-5	Since Sept. 2003, FTB has maintained two recording benthic thermometers in Hog and Egypt Bays. The data reflect conditions of benthic life forms.	hourly, by datalogger	FTB
10	Buffers of native vegetation	WS-1	A lack of intact shoreline integrity indicates a risk of nonpoint pollution.	annually	Aerial photos
11	Number of septic systems	WS-2	An estimate of the number of septic systems in the watershed provides an index of the risk of potential pollution.	annually	GIS parcel maps
12	Oyster set outside lease area	OTH-1	Required by Mike Briggs' lease agreement. Boulders and firm substrates will be examined for signs of oyster set once a year.	annually in spring	M. Briggs & FTB

• TIER 2 PRIORITY					
I. #	Indicator	Type	Rationale	Schedule	Data Source
13	Horseshoe crab spawning survey in Egypt Bay	SPC-2	The 2003–2005 horseshoe crab tracking study suggests Egypt Bay is an important breeding site, and deserves to be closely monitored.	High tides during June	FTB
14	Harbor seal population, movements, pups	SPC-3	Using photography to identify seals on sight will tell us how many seals reside in the bay, where they go, and how many pups they produce. In the mid-1990s, 80 seals hauled out; 10 years later that number is down to about 20.	Weekly, April–Nov.	FTB
15	Shorebird count, Hog Bay	SPC-4	Migrating flocks of semipalmated sandpipers, resident in the bay mid-July to mid-September, numbered up to 5,000 individuals in 1986; but more recently only 100–200. Two bird counts are scheduled for 2005, one ea. in Jul & Aug.	2 counts/yr.	FTB & Downeast Nature Tours
16	Breeding pairs of American bald eagles, fledglings	SPC-5	Year-round residents of the bay area, five pairs of eagles now breed on these shores. They are listed here as one of Maine's threatened species.	Annually	Wildlife Div., IFW, Bangor
17	Commercial landings (if data available)	ESF-4	Includes: lobsters, crabs, worms, mussels, clams, seaweed, oysters (aquaculture), land-based aquaculture products [UMCCAR], alewives, elvers.	Annually	Individuals, dealers, DMR
18	Blue mussel assay	TOX-1	Gulf Watch can monitor for 12 low-molecular-weight polycyclic aromatic hydrocarbons and 12 high-molecular-weight PAHs; 22 polychlorinated biphenyls (PCBs); 16 chlorinated pesticides; and 9 metals. Only if funds are available.	Every 3 years	Gulf Watch (?)
19	Fecal coliform bacteria count	TOX-2	Monitoring for health hazards and shellfish bed closures.	Monthly	DMR, Lamoine
20	Phytoplankton	TOX-3	The protocol is designed to identify plankton as vectors of shellfish poisoning.	Weekly	FTB
21	Salinity (stratification)	PHY-6	Salinity is measured with a refractometer from water samples taken with a plankton net, and with a YSI DO probe.	weekly, fr. phyto. tow	FTB
22	Ecohistory narrative	OTH-2	Interviews conducted by Lauren Alnwick-Pfund for her COA senior project.	May, 2005	Lauren A.-P. COA Senior. Proj.
• TIER 3 PRIORITY					
23	Bank erosion	PHY-7	An annual shore walk, kayak trip, or aerial overflight identifies discharge pipes, erosion, and vegetative buffers on developed shorelands (If logistics allow).	Annually in summer	FTB shore walk
24	Nitrogen [if cost allows]	PHY-8	The cost of lab analysis is likely to make weekly monitoring unfeasible.	weekly sampling	FTB, & lab analysis
25	Invasive species	OTH-3	Bay users are asked to keep their eye out for Asian shore crabs, et al.	Watch list	All bay users

# INDICATORS REPORT 2005

How's the bay doing?

1		<p>✓ MATING HORSESHOE CRABS, Hog Bay</p> <table> <tr> <td></td> <td>2001</td> <td>2002</td> <td>2003</td> <td>2004</td> <td>2005</td> </tr> <tr> <td>Females</td> <td>351</td> <td>276</td> <td>338</td> <td>323</td> <td>527</td> </tr> <tr> <td>Males</td> <td>982</td> <td>465</td> <td>556</td> <td>592</td> <td>998</td> </tr> <tr> <td>Total</td> <td>1333</td> <td>741</td> <td>894</td> <td>915</td> <td>1525</td> </tr> </table>		2001	2002	2003	2004	2005	Females	351	276	338	323	527	Males	982	465	556	592	998	Total	1333	741	894	915	1525	
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Total	1333	741	894	915	1525																						
2		<p>✓ EELGRASS Spread &amp; Density</p> <p>One of the bay's primary food producers, eelgrass beds suffered a 90% decline in 2001, reducing protective habitat for juvenile fish, depleting food for ducks, geese, and other species. Recovery has been slow and uneven.</p>																									
3		<p>✓ BENTHIC INVERTEBRATES</p> <p>So much of the bay is devoted to intertidal or shallow subtidal mudflats, life in and on the flats is an important part of the food web in Taunton Bay. No blood worms and no adult clam worms were found in 20 samples from Hog Bay taken in October 2005.</p>																									
4	✗ CLAM POTS	<p>The growth rate of clams can be told experimentally by placing seed clams on closed flats to see how they fare. Predation by green crabs, worms, and birds can also be gauged by such a study. The study will begin in 2006.</p>	<div>2006</div>																								
5		<p>✓ WEATHER</p> <p>Strong winds cause shore erosion and disturb bottom sediments, increasing turbidity; heavy rains and meltwater lower salinity and increase pollution; unusual temperatures stress marine life. 2005 was unusually cool, windy, and wet.</p>																									
6	✗ DISSOLVED OXYGEN (DO)	<p>When algal blooms die off, they sink to the bottom and decay, depleting waterborne oxygen required by other marine organisms. DO measurements were attempted in 2005, with untrustworthy results.</p>	<div>?</div>																								

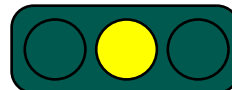


7



### ✓ TRANSPARENCY

The depth at which a Secchi disk (photo) can be seen is a measure of light penetration through the water column. In 2005, transparency was somewhat higher than in recent years, but was measured on calm days with low turbidity.

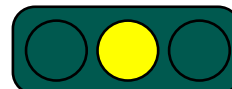


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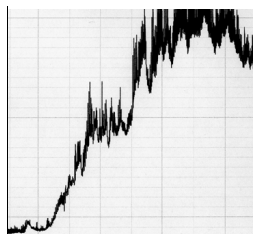


### ✓ SURFACE TEMPERATURE

When phytoplankton tows are made in the upper 30 feet of the water column, the temperature of the sample is taken as a measure of surface temperature. In 2005, readings held relatively steady in April and May as a result of a cool and prevailing east wind.



9



### ✓ BOTTOM TEMPERATURE

Two recording thermometers are placed on the bottom of the bay, one west of Butler Island, the other north of Round Island. In 2005, both showed the same lag in spring warming caused by cool winds off the Gulf of Maine.



10



### ✓ VEGETATED BUFFER STRIPS

The integrity and diversity of shoreline vegetation affects the amount of nonpoint pollution reaching the bay. The broader and denser the buffer, the better. Aerial photographs show breaks in this shoreline defense against excessive runoff and potential pollution. *(Photo shows good buffer.)*



### 11 SEPTIC SYSTEMS RINGING THE BAY

Disposal of increasing amounts of septic waste in the watershed increases the likelihood that some of it will leach into the bay, perhaps lowering the water quality on which marine organisms depend. Mapping watershed parcels with septic systems is now complete.



12

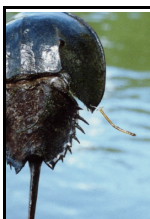


### ✓ OYSTER SET

Will farmed oysters reproduce in the bay, adding a new species of shellfish that has never thrived here before? Cooperative monitoring between oyster farmer Mike Briggs, FTB, and DMR shows that has not happened yet.



13



### ✓ MATING HORSESHOE CRABS, Egypt Bay

From tracking studies, horseshoe crabs do not appear to mix between breeding populations in Hog and Egypt Bays, maintaining two separate sub-populations. In 2005, no tagged crabs from Hog Bay were sighted in Egypt Bay, where numbers remain strong.



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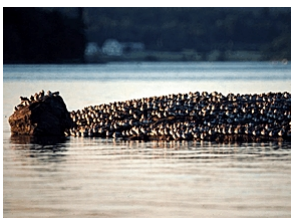


## ✓ HARBOR SEALS

Study of 100s of photographs taken in 2005 of harbor seals in Taunton Bay supports a population estimate of 75–80 individual seals, including those pupped in April, May, and June. This will serve as a baseline for subsequent studies.

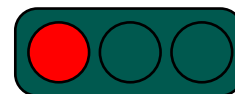


15



## ✓ SHOREBIRD COUNT

Flocks of sandpipers numbering in the thousands were common 20 years ago; now they are down to a few hundred. The cause of this decline is uncertain. Shorebirds feed on mud shrimp (*Corophium volutator*), which may be scarce.

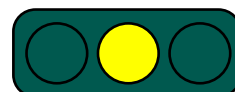


16



## ✓ ACTIVE EAGLE NESTS &amp; FLEDGLINGS

From Falls Point to Round Island, five breeding pairs of American bald eagles nest around the bay. Where four immature eagles fledged successfully in 2004, only one did in the wet and windy spring of 2005.

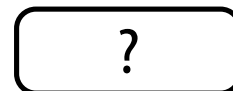


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## ✗ COMMERCIAL LANDINGS

The amount of life we take from the bay affects the functioning of the ecosystem supporting all species. To assure sustainable harvests, we would like to keep track of how much is taken every year. That information is not available.

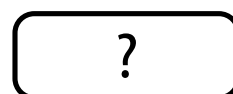


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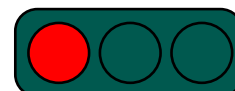
## ✗ BLUE MUSSEL ASSAY

Gulf Watch can tell the toxic chemical load in local waters by analyzing blue mussels tissue. The tests are expensive, and The Taunton Bay Study did not receive the funding it applied for in 2005 to cover the costs.



## 19 ✓ COLIFORM BACTERIA COUNT

The bacterium *E(scherichia) coli* is an indicator of fecal waste reaching the bay. When levels are high enough, shellfish beds are closed to protect human health. In 2005, eight beds were closed around the bay.





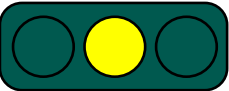

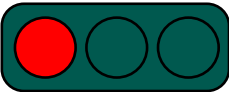
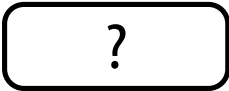


20



## ✓ PHYTOPLANKTON

Filter-feeding shellfish can become poisonous to humans when they eat enough of six toxic species of phytoplankton. In 2005, a few toxic species were seen, but not in sufficient numbers to threaten human health. (The species shown, *Chaetoceros* spp., is not one of the toxic species.) (Photo: Sarah Gladu.)



21	✓ SURFACE SALINITY	As an estuary, Taunton Bay features varying levels of salinity, largely dependent on snowmelt, precipitation, runoff, and bank seepage. In 2005, salinity off Butler Point at high tide was between 25–35 parts per thousand, gradually increasing April–October.	
22	 ✓ ECOHISTORY NARRATIVE	Long-term trends: flounders, eelgrass, shorebirds, urchins, scallops, and buffers of native vegetation are in decline; shoreline development, runoff, and seepage are on the rise. Longtime residents note that no two years are the same.	
23	 ✓ SHORE EROSION	Wind energy and rising sea level translate to increasing bank erosion throughout the bay. This is particularly evident on steeper, unvegetated bluffs, but is also seen where trees lie on the shore, and in receding soil lines.	
24	✗ NITROGEN	Are nitrogen levels in the bay promoting algal blooms, depleting waterborne oxygen? Test samples are expensive to analyze, and samples should be taken throughout the year. The project budget could not support that cost.	
25	 ✓ INVASIVE SPECIES	Green crabs have been around so long we forget they are not native to the bay. Now, Asian shore crabs are on Schoodic Point, and heading our way. The one day we looked for them in 2005, we didn't find any in Egypt Bay.	

## SCORECARD

7	GREEN	•Oyster Set •Harbor Seals	•Salinity •Phytoplankton	•Invasive Species •Horseshoe Crabs, Egypt Bay	•Horseshoe crabs, Hog Bay
9	YELLOW	•Benthic Invertebrates •Buffer Strips	•Septic Systems •Transparency	•Surface Temperature •Eagle Reproduction	•Bottom Temperature •Ecohistory Narrative •Weather
4	RED	•Coliform Bacteria	•Eelgrass	•Shorebirds	•Erosion
5	UNKNOWN	•Dissolved Oxygen	•Nitrogen	•Blue Mussel Assay	•Commercial Landings •Clam Pots

Contact [steveperrin@verizon.net](mailto:steveperrin@verizon.net) for more information.



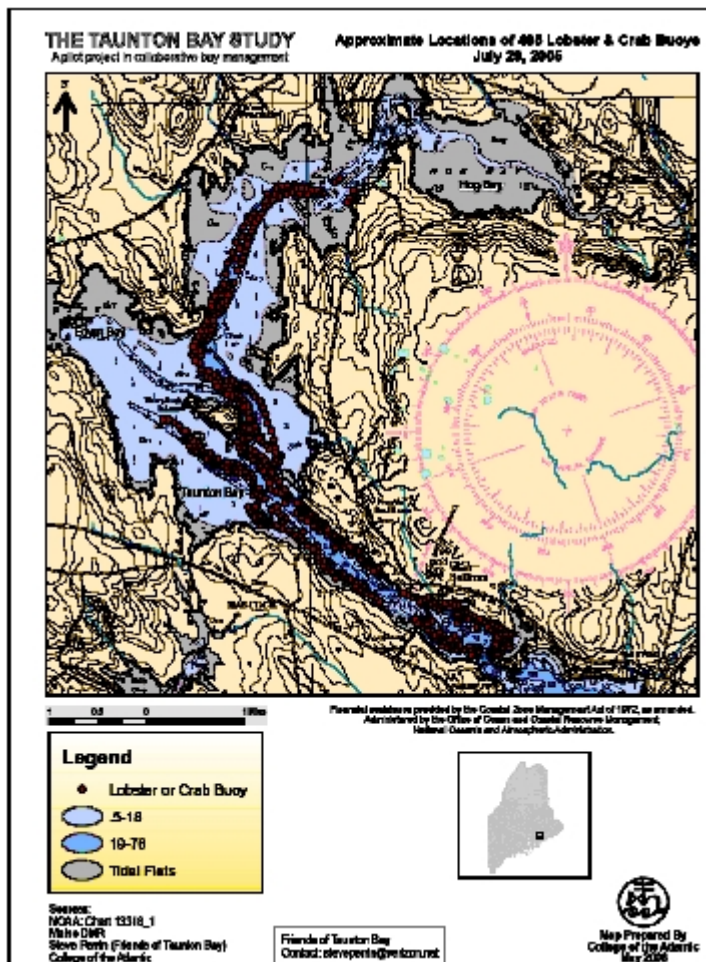
## ► MAPPING REPORT, EXECUTIVE SUMMARY

Prepared by Steve Perrin, author of Mapping Report

Project mapping was intended to “develop transferable community mapping capabilities to provide products useful to collaborative decision making and bay management in a watershed setting” (RFP, November 12, 2004). Cartography for the resulting 23 maps was provided by the Geographic Information System (GIS) Laboratory, College of the Atlantic (COA) in Bar Harbor. Working closely with staff and students, Steve Perrin coordinated mapping activities with The Taunton Bay Study. Cartographers working on the project were:

Gordon Longworth, Director, GIS Laboratory, COA  
Lauren Alnwick-Pfund, GIS student, COA  
Marianna Bradley, GIS student, COA  
Julien Delarue, GIS student, COA  
Apoorv Gehlot, GIS student, COA.

Clarity and simplicity were sought in all maps to make them useful to a wide range of users. A uniform format was desired, but with different cartographers following different schedules, was difficult to achieve. Mapping standards were discussed with the Muscongus Bay project, the Maine Office of GIS, and DMR. But standardization was not imposed to an extent that it would stifle creative problem solving by individual cartographers, who strove to find effective ways of presenting data in graphic form. The map showing Taunton Bay at a Glance, for instance, is innovative in displaying a range of information in an easily assimilated format. The Estuary Stress Gradient map combines highly detailed digital photography with a bold design enabling users to grasp a complex concept visually in a real setting without undue reliance on technical descriptions.



Ecosystem-based management is dependent on detailed and reliable information about the coastal waters to be managed. Developing a comprehensive management plan for Taunton Bay requires good data about these particular waters. Ecosystems and maps are both place-based, so in conjunction with monitoring, ecosystem mapping on a local scale is sure to play an essential role in the evolution of regional coastal management in Maine. The mapping and indicators monitoring aspects of the study are companion pieces intended to be shared with stakeholders, enabling them to take part in ongoing management discussions.

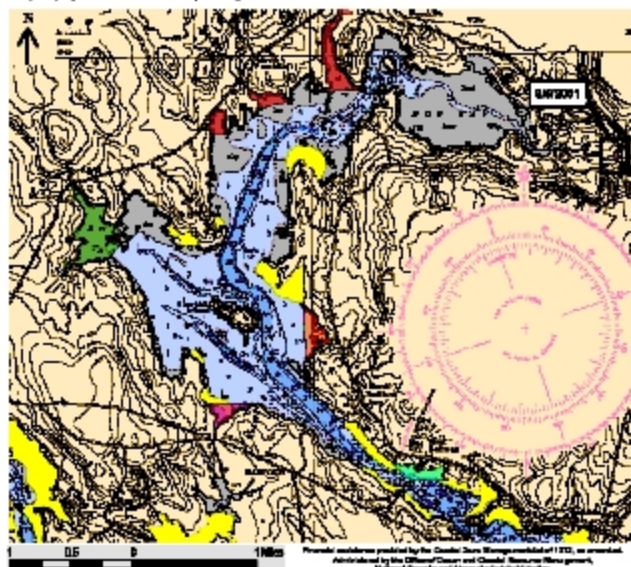
Maps were developed on the following themes:

- Hydrology
- Aquaculture
- Fisheries
- Flat closures
- Primary producers
- Eelgrass decline
- Seal haulouts
- Eagle habitat
- Horseshoe crab sites
- Wildlife
- Biodiversity
- Soils suitability
- Bluff stability
- Estuary stress
- Locating the bay (among others)

# THE TAUNTON BAY STUDY

A pilot project in collaborative bay management

Clean Flat Closures 2005



## Legend

### Clean Flat Closure Areas and Type

#### Date Closed and Type

- 5/30/2002 Type 1\*
- 9/5/2001 Type 1\*
- 8/15/2001 Type 1\*
- 8/5/2000 Type 1\*
- 1/31/1995 Type 1\*
- 4/27/2006 Type 3\*\*
- Clean Flats

\*Type 1 - Prohibited, no shellfish harvesting of any kind  
\*\*Type 3 - Restricted, shellfish may be harvested but only on a deposition plan

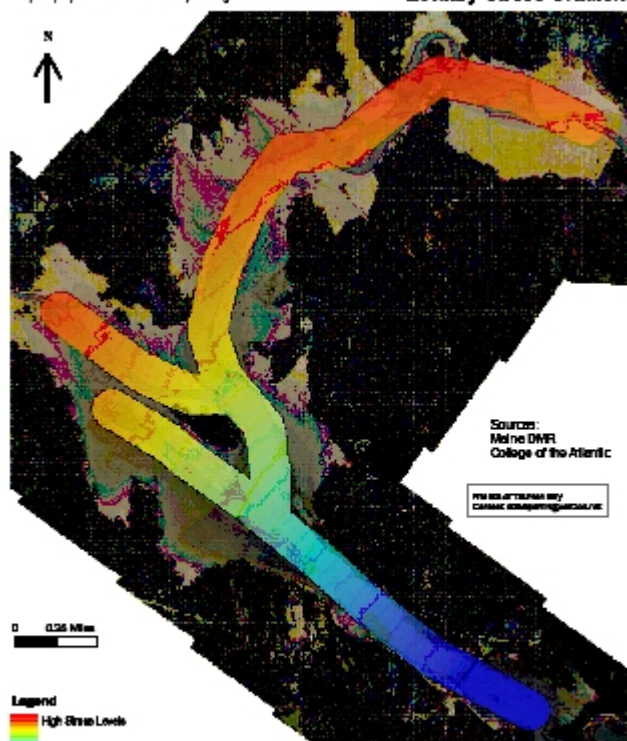
Friends of Taunton Bay  
Contact: shawgarry@att.net

Map Prepared By  
College of the Atlantic  
May 2006

# THE TAUNTON BAY STUDY

A pilot project in collaborative bay management

Estuary Stress Gradient



Sources:  
Maine DNR  
College of the Atlantic

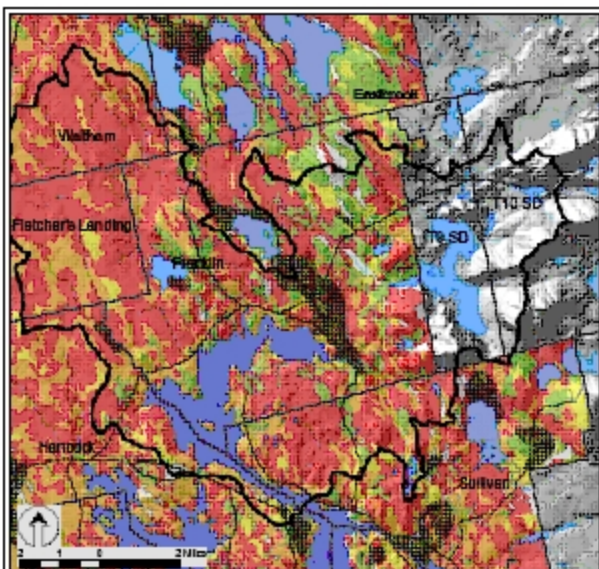
For additional info  
Contact: shawgarry@att.net

- High Stress Levels
- Low Stress Levels

High temperature & salinity ranges; low species diversity  
Low temperature & salinity ranges; high species diversity

Prohibited: activities provided by the Coastal Zone Management Act of 1972, as amended.  
Advised: activities provided by the Office of Ocean and Coastal Resource Management,  
Federal Coastal and Ocean Resource Administration.

Map Prepared By  
College of the Atlantic  
March 2006



Sources:  
Maine DNR  
Maine Office of the  
Maine State Survey  
College of the Atlantic



Map Prepared By  
College of the Atlantic  
April 2006

## Legend

- Taunton Bay Watershed
- Boundary
- LAKE AND POND
- Stream
- Taunton Bay
- Aquifer
- Soils Potential for Development
- Very High
- High
- Medium
- Low
- Very Low

Friends of Taunton Bay  
Contact: shawgarry@att.net

# THE TAUNTON BAY STUDY

A pilot project in collaborative bay management

Watershed and Estuary  
Soils Development Potential  
and Aquifers

Prohibited: activities provided by the Coastal Zone Management Act of 1972, as amended.  
Advised: activities provided by the Office of Ocean and Coastal Resource Management,  
Federal Coastal and Ocean Resource Administration.



## ► GOVERNANCE PERSPECTIVE, EXECUTIVE SUMMARY

Prepared by Steve Perrin, author of *A Governance Perspective*

At The Muscongus Bay Forum in Waldoboro on March 25, 2006, NOAA Fellow Vanessa Levesque summarized the aim of the two bay management pilot projects in the form of a question: “What is the role of community in managing coastal resources?” It is clear that the additional human resources required if management decisions are to be made closer to coastal waters themselves will be drawn from local citizens who volunteer to provide a finer-grain of monitoring data and, beyond that, to play an active role in the decision-making process itself. A year earlier, on April 18, 2005, Caroline Pryor, leader at that time of the Governance Working Group of The Taunton Bay Study, had drafted a Scope of Work that set forth the tasks the group was to accomplish in somewhat more detail:

- Research bay management principles and models from other regions
- Compare various models of effective bay management involving state and local agencies in different configurations
- Refine and propose the design thought to work best under circumstances in the Taunton Bay region, with input from stakeholders
- Assess state, local, and volunteer capacity necessary to make an ecosystem-based bay management plan work in actual day-to-day practice.

In addition, she added, the Governance Committee intends to develop and propose:

- A set of management principles for Bay Management Plans
- An outline of what a Management Plan for Taunton Bay would look like.

An ambitious agenda, much of which the working group tackled in a series of 16 meetings between February 2005 and April 2006. During that time, the group focus shifted from Taunton Bay as an entity in itself to Taunton Bay as one bay among several bays within a region presenting similar or related issues. Ecosystem-based management remained a constant theme throughout the project, but coastal management on a regional basis took on greater significance as the year progressed. Visualizing what those two ideas would look like if put into practice, and how that might be accomplished, took up much of the year.

Friends of Taunton Bay is an all-volunteer organization. Its members give their time to attend meetings, which is time taken away from jobs, family, travel, and other commitments. What that meant in terms of the pilot project was that meetings could be held when all parties had open time, but getting things done between monthly meetings was always problematical. Only one member of the group was “retired,” that is, could schedule activities to suit his inclination, and could dedicate considerable time to moving the project ahead. The others had major commitments to jobs and families, and had to borrow project time from very busy lives. That they accomplished as much as they did speaks to the expertise, work habits, and dedication many of them brought to the project. Members of the Governance Working Group were:

Frank Dorsey, Vice-President, Friends of Taunton Bay

Roger Fleming, Attorney, Conservation Law Foundation

Lee Hudson, Frenchman Bay Fisheries

Vanessa Levesque, NOAA Fellow, Maine State Planning Office and Department of Marine Resources

Steve Perrin, President, Friends of Taunton Bay

Caroline Pryor, independent consultant

Barb Welch, Executive Director, Frenchman Bay Conservancy.

The Governance Working Group was instrumental in arranging a stakeholders meeting on July 27, 2005, and a meeting with state agency personnel on September 1. Four members of the group participated in panels at the Bay Management Steering Committee Workshop in Belfast on February 17, 2006. Three

meetings exploring regional coastal management issues were held in April and May 2006.

After a year of discussion, on March 23, 2006, the Governance Working Group unanimously approved a set of four principles to serve as guidelines in implementing coastal use management. The principles are worded as follows:

### **Principles of Coastal Use Management**

Stakeholders who subscribe up-front to a set of principles such as these are predisposed to contribute to and support management decisions.

**1. Public Trust:** The coastal marine resources of Maine are held in trust by the State. Therefore, the primary coastal management goal is to sustain those resources for the long-term benefit of all citizens.

- Local users and managers are stewards on behalf of Maine citizens
- Use of public trust resources in the coastal management area is dependent on responsible actions by all users

**2. Ecosystem-based Management:** In contrast to single-use (or single-species) management, ecosystem-based management considers the effects of all uses on ecosystem structure and function in a given place, and on relationships between system components over time. It is not ecosystems themselves that are managed, but human behavior.

- Management decisions support the long-term sustainability of natural systems and processes
- Decisions regarding any facet of the system are recognized as affecting the whole system
- Management is both adaptive and proactive
- The economic and social vitality of human communities is considered in management decisions

**3. Information-rich Management:** Management decisions are informed by a broad range of both historical and up-to-date information provided by monitoring, research, and personal observation.

- Ecosystems are monitored and described scientifically
- Data are augmented by local experience and observations
- Trends are incorporated into management decisions
- Confidentiality of proprietary information required for management decisions is protected
- The processes by which such information is used are in the public record

**4. Integrated Land-and-Water-Use Management:** Streams, runoff, and seepage carry land-use products from a watershed into marine waters, linking the land to the sea. Coastal use management recognizes that connection, and provides a cooperative means of bringing the knowledge and responsibilities of state, regional, and local offices to bear on coastal uses and issues.

- Within state jurisdiction (out to three miles), management is coordinated throughout the subtidal marine environment, the intertidal environment, immediate coastlands, and interior coastlands to the extent of the watershed
- Management is collaborative among stakeholders and municipalities, state agencies, and federal agencies

Working from those principles, Steve Perrin wrote a draft Governance Report around the structure they provided. Barb Welch said the draft was too general in lacking specific details regarding Taunton Bay. Steve added a section presenting such details as based on his work with the Indicators and Mapping Working Groups, circulating the draft to the group on April 27. The group did not meet after that date.

The revised draft is divided into three sections dealing with, A) Using ecosystem-based management to frame issues in Taunton Bay, B) Regional management issues, and C) Recommendations for improving coastal management in Maine. Management issues identified in the bay include mussel dragging (a moratorium on dragging is in place until the end of June 2008); turbidity of local waters; a need for relevant ecosystem information; a need for habitat or ecosystem-structure management to insure sustainability; over harvesting of scallops, urchins, and elvers; erosion and sea-level rise; buffers of native vegetation throughout the watershed; water quality; wildlife disturbance; and lack of landings data on a meaningful scale.

At the bay management workshop on February 17, 2006, three panelists gave strong support to coastal management on a regional basis. Details differed among the three presentations, but regional coastal management stood out as an approach whose time had come. The regional management section of Steve's second draft report illustrates how regional and ecosystem-based coastal management might be combined. It deals with restructuring state agencies to accommodate regional, ecosystem-based management, public-trust management, ecosystem-based management, the need for detailed information, shifting baselines, integrated management both horizontal and vertical, enforcement, public education, conflict resolution, reliance on volunteers, need for regional staff, funding regional management, regional group coordination, developing a template for regional coastal management, principles of coastal use management, and preparing for unforeseen events.

The final section of the report presents 19 recommendations focusing attention on different aspects of regional, ecosystem-based, coastal management. These recommendations emphasize the need for a trained and supervised volunteer workforce, the need to restructure the current management apparatus to make effective use of ecosystem-based thinking, the need to revisit public-trust doctrine in light of recent Pew and U.S. Oceans Commission reports, the need for land- and water-use managers to collaborate, resolution of use conflicts, staffing and funding regional management offices, group representation on regional management bodies, adoption of a set of guiding principles for coastal management, and the need for adaptive coastal management able to respond quickly to unanticipated situations.

Three illustrations are appended to the Governance Report: 1) schematic diagram of a proposed regional management structure; 2) map of the Maine coast divided into eight management regions; and 3) a closer look at the Blue Hill and Frenchman Bay region, including a few of its organizational assets. □

## ► ECONOMIC ASSESSMENT OF FISHERIES IN TAUNTON BAY, EXECUTIVE SUMMARY

Prepared by: Barbara S. Arter, author of Economic Assessment Report

Compiled as a deliverable for the Taunton Bay Study, this report provides an estimate of harvesting activities and revenues for marine resources in Taunton Bay. The report reviews harvest practices, prices, and relative values for alewives, elvers, worms, lobsters, crabs, mussels, clams, kelp, urchins, scallops, oyster aquaculture, and land-based aquaculture. Three sources of data were reviewed: 1) MDMR Licensing Data, 2) MDMR Landings Data, and 3) personal interviews with harvesters, dealers, and other specialists. Since there is little MDMR bay-level landings data available, the primary source of revenue information for the report is from personal interviews.

MDMR Licensing Data indicate that 8.5% of year-round households in Hancock, Sullivan, and Franklin



depend on marine resources as a source of income and that 20% of those license-holders harvest multiple species throughout the year. The data also indicate that the four most commonly harvested species in the area are lobsters/crabs (36%), marine worms (26%), clams (12%), and elvers (7%), but the data do not indicate where this harvesting is taking place. Lastly, the data indicate that area harvesters represented 12% of county licenses between 1999 and 2004, and that there was a 20% decrease in the number of area license-holders during that time.

Using information gleaned from interviews, as well as MDMR Landings and Licensing Data, the total estimated revenue for all fisheries/resources obtained from TB during 2003-2004 ranges from \$4,170,258 to \$10,263,390. The significant range of revenue variability is most likely due to differences in effort, market, weather, and willingness to report accurate information. The four species with the greatest potential individual gross revenue currently are worm aquaculture, elvers, sea urchins, and oyster aquaculture.

Five recommendations regarding future bay-management considerations are provided:

- This report is preliminary and provides only estimates, therefore, agencies and organizations should consider a more comprehensive review of the local marine economy.
- Since bay-level data are currently unavailable, the state should work directly with local communities to devise a method whereby bay-level or harvester-level data can be shared without threatening the confidentiality of harvesters.
- Harvesters and town governments are the primary local users and decision-makers; as such, state and federal agencies and local conservation organizations should intensify efforts to engage harvesters and town officials.
- This report dealt strictly with revenues and not management issues therefore, there should be a well-planned effort to explore, document, and develop action items to address local fisheries management issues.
- There is little data on potential biomass for TB fisheries and ecosystem; MDMR and other researchers should develop local maximum sustainable yield and optimum sustainable yield models for the bay using ecosystem-based management principles.

Table 2. Marine Species Harvested from Taunton Bay and the Availability of Data

Common Name	Scientific Name	Level at which data is available
Soft shelled clams	<i>Mya arenaria</i>	Town (Shellfish Sanitation Area)
Bloodworms (wild & aquaculture)	<i>Glycera spp.</i>	State
Blue mussels	<i>Mytilus edulis</i>	County
Elvers (juvenile eels)	<i>Anguilla rostrata</i>	State
Alewives	<i>Alosa pseudoharengus</i>	State
Kelp	<i>Laminaria longicruris</i>	State
Oyster (aquaculture)	<i>Crassostrea virginica</i>	State
Lobsters	<i>Homarus americanus</i>	County
Crabs	<i>Cancer spp.</i>	County
Sea urchins	<i>Strongylocentrotus droebachiensis</i>	County
Halibut (aquaculture)	<i>Hippoglossus hippoglossus</i>	State
Scallops	<i>Plactopecten magellanicus</i>	County

Table 3. MDMR Harvest License (2004) and US Census Data (2000) for Hancock, Sullivan, and Franklin.

Town	Population (2000 Census)	# of Harvester Licenses	# of Harvester s	# of Year- round Households	% of Year- round Households with a Harvester
Hancock	2,147	118	90	983	9%
Sullivan	1,185	89	57	522	11%
Franklin	1,370	46	34	617	6%
<b>Total</b>	<b>4,702</b>	<b>253</b>	<b>181</b>	<b>2122</b>	<b>8.5% (Average)</b>

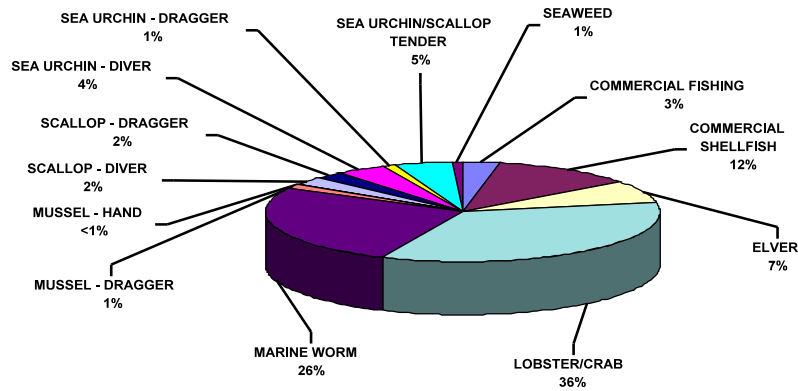
Table 4. Comparison of Regional and County MDMR Licenses, 1999-2004.

Year	TB Regional Licenses	Hancock County Licenses	% of Hancock County
1999	315	2504	12.5%
2000	293	2611	11.2%
2001	260	2516	10.3%
2002	262	2511	10.4%
2003	273	2444	11.2%
2004	253	2966	8.5%

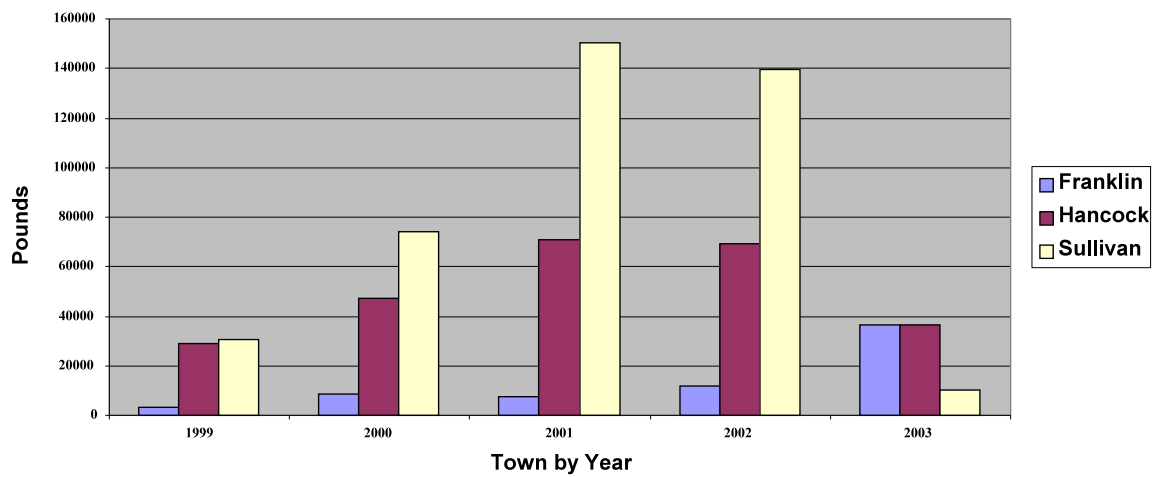
Table 5. Approximate Number of Harvesters/Enterprises as Estimated from Personal Interviews.

Species	Approximate # of Harvesters/ Enterprises in TB
Worms (Wild)	65 (License Data)
Elvers	20
Clam	32 (License Data)
Lobsters	3
Crab	3
Sea Urchin	3
Sea Scallop	3
Mussels	1
Alewives	1
Kelp	1
Oyster Aquaculture	1
Worm Aquaculture	1
Halibut Aquaculture	1
<b>TOTAL</b>	<b>135</b>

**Figure 1. 2004 MDMR Licenses Issued to Hancock, Sullivan, and Franklin Harvesters by Species**



**Figure 2. Clam Landings (Pounds) Reported Harvested from Franklin, Hancock, and Sullivan, Maine (1999-2003)**



**Figure 3. Clam Landing Revenues (Dollars) Reported to DMR for Sullivan, Hancock, and Franklin, Maine (1999-2003)**

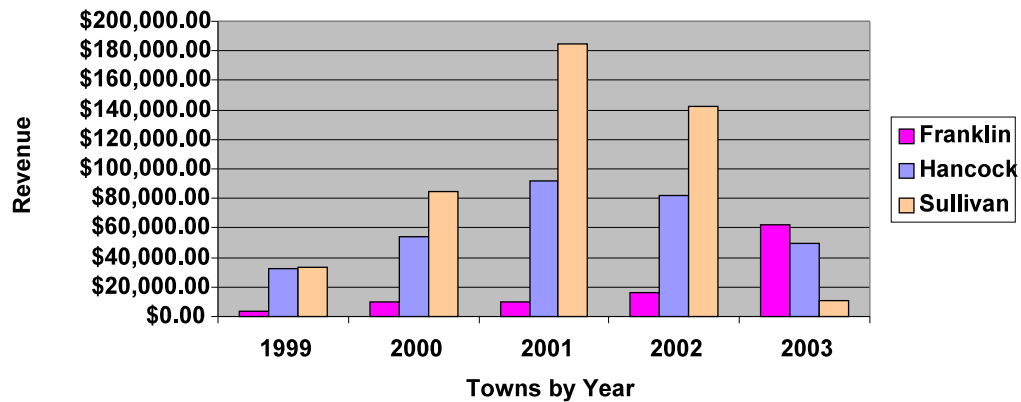


Table 6. Potential Annual Revenue Per Individual Harvester/Entrepreneur and Total Estimated Annual Revenue for Taunton Bay.

Fishery	Data Year	Potential Individual Annual Gross Revenue	Estimated # of Harvesters/ Entrepreneurs	Total Estimated Annual Gross Revenue for TB	Data Source
Clam	2003	\$3,831	32	\$122,602	2
Worms (Wild)	2004	\$36,000-\$55,000	65	\$2,340,000-\$3,575,000	1
Mussels	2003	\$95,716	1	\$95,716	3
Kelp	2004	\$4,800-\$14,000	1	\$4,800-\$14,000	1
Sea Urchin	2004	\$18,900-\$141,750	3	\$56,700-\$425,250	1
Sea Scallop	2004	\$7,500-\$81,000	3	\$22,500-\$243,000	1
Lobsters	2004	\$45,000-\$55,000	3	\$135,000-\$165,000	1
Crab	2004	\$8,000 -\$10,000	3	\$24,000-\$30,000	1
Elvers	2005	\$45,000-\$270,000	18-20	\$810,000-\$5,670,000	1
Alewives	2005	\$12,000-\$15,000	1	\$12,000-\$15,000	1
Oyster Aquaculture	2003	\$106,760-\$125,600	1	\$106,760-\$125,600	1
Worm Aquaculture	2004	\$440,000	1	\$440,000	1
Halibut Aquaculture	N/A	N/A	1	N/A	1
<b>Total Estimated Value of All Fisheries/Resources in TB</b>				<b>\$4,170,258 - \$10,263,390</b>	

1 = Personal Interview

2 = MDMR Municipal-level Landings Data

3 = MDMR County-level Landings Data □

## ► OUTREACH REPORT, EXECUTIVE SUMMARY

Prepared by: Lee Hudson, author of Outreach Report

Outlined below are the main contact methods we have used to include the public in our project. Actual documentation records of public participation, additional minutes and reports, as well as the news releases are included in project Deliverables 3c, 3d & 3e.

### **Coordinating Committee Meetings**

The main purpose for the formation of the Coordinating Committee was to facilitate inter-workgroup coordination to avoid duplicate efforts and collaboration. Meetings were held regularly throughout most of the project, which although not publicized, were open to the public. Minutes of these meetings, with attendance records, were kept and will be included in Deliverable 3c and 3d.

### **Personal interviews with harvesters and general community members**

- a. Barbara Arter's interviews with at least 25 individuals which are documented in her report submitted as Deliverable 5b.
- b. Lauren Alnwick-Pfund's report of in-depth interviews with thirty-three (33) individuals is included in Deliverable 3c.

- c. Shep Erhart's personal interviews with 6 local realtors, the raw data will be included in Deliverable 3d.
- d. Lois Johnson personally interviewed several community members using the questionnaire developed for "Landowner" stakeholder contact and her raw data will also be included in Deliverable 3d.

#### **Town Meeting Style Public Meeting: July 27, 2005**

- a. A flyer was developed and distributed and a press release generated and will be submitted in the Outreach Deliverable 3e.
- b. A variety of stakeholders (approximately 23) gathered at a facilitated meeting where the participants discussed "Hopes, Concerns and Ideas" for the future of Taunton Bay. The report of this event was written by Project Assistant Lauren Alnwick-Pfund and is included at the end of this text. The facilitated "raw data" she recorded from that meeting is included in her report.

#### **State Agency Meeting: September 1, 2005**

- a. Barb Welch's preparation document was included in Deliverable 3b.
- b. Meeting notes generated by Vanessa Levesque are included in Deliverable 3d.
- c. The attendance list for this meeting was generated and circulated as an electronic contact list and is included in Vanessa's meeting notes.

#### **Tour of the University of Maine Center for Cooperative Aquaculture Research and the U.S. Department of Agriculture facility: October 26, 2005**

In an effort to promote education and community understanding as a means of "conflict resolution" and in response to questions from a wide variety of stakeholders, this event was intended to provide an opportunity for the curious to learn more about the local facilities, which are currently raising bloodworms, halibut, cod, salmon, seaweed, and sea urchins indoors. Approximately 18 people attended and, in general, said they would recommend the tour to others. The email invitation and attendance records are included in Deliverables 3d and 3e.

#### **DMR Listening Session: January 19, 2006**

Barbara Arter's preparation document was included in Deliverable 3b.

- a. Ms. Arter sent an email copy of the press release (copy in Deliverable 3e) invitation to approximately 20 people and made approximately 15-20 phone calls to personally invite people.
- b. A poster announcing the meeting was created and about 30 posters were hung in the area; see Deliverable 3e.
- c. GIS maps showing what the harvesters drew on the maps that evening are being created by Vanessa Levesque (Deliverable 7a)
- d. 28 people attended this session and a report of the meeting by Barbara Arter can be found following the report of the town meeting at the end of this text.

#### **REPORT OF THE TOWN MEETING JULY 27, 2005 (excerpt)**

Lauren Alnwick-Pfund, Project Assistant

#### **The Meeting**

The event facilitator, Ron Beard, gave the welcome and introduction. Following the outline for the session and a brief description of the Taunton Bay management pilot project, he provided some ground rules to help foster an atmosphere of trust and mutual respect. These included basic guidelines for discussion such as: listen to understand, ask questions, share the "air time" (one person speaks at a time), focus on interests, not positions, and disagree openly and respectfully. Stakeholders were informed that their input and comments would be compiled and forwarded to the State.

The facilitator then reiterated the suggestion that was broached during the session outline encouraging the group to divide itself into smaller focus groups, which quickly and smoothly became the Fisheries and the Landowners. The group split up quite easily along the lines of fisheries and landowners, but did not necessarily end up unifying (i.e. actually talking to each other across stakeholder/cultural boundaries). That communication was lacking at the meeting reflects trends in the general community. This project faces an important challenge: the task of opening up channels of communication between folks whose paths generally don't cross, all with the aim of increasing mutual understanding (if not acceptance) of one another.

The smaller group sessions were the most intensive and therefore were planned to be the longest segment of the meeting, taking up at least 45 minutes to an hour. To begin, facilitators prompted participants to speak to the three topics outlined above and recorded what was said in large print on flip charts. After brainstorming, the group reviewed the material they generated and starred the important ideas they wanted to share in the larger forum. Following that was a refreshment break with a dual role of taking a break and giving facilitators time to write the key items identified by the group onto 8 ½ by 11 sheets and place them on a large blank sheet at the front of the room.

After the break, the attendees regrouped and the event facilitator invited the focus group facilitators (or any other participant) to report their key findings. Next was a discussion of the findings, guided by the following questions:

- What hopes and concerns are shared across all groups?
- Where are there areas of potential or actual disagreement?
- Are there some shared beliefs or principles that should guide this project as it goes forward?

### **Raw Meeting Data**

The following is a verbatim transcript of the data that was gleaned from Town Meeting participants and recorded onto flip-charts by facilitators. Following the transcript is a list of the common ground hopes, concerns and ideas shared across the groups.

### **Fisheries Focus Group**

#### *Hopes*

- There will be a fishing industry for the children, so they can continue their family's lifestyle
- The bay will be opened up for mussel dragging once again, as it was in the past.
- Mussels won't be wasted. (Mussels are growing fast and losing economic value. They are too large and also have pearls. Too large + pearls = no good for market)
- There will be a long, sustainable harvest for generations to come
- Seaweed harvesters are afforded the same rights as other fisheries
- There would be better access to the bay
- There would be a *\*good\** management plan
- Resources (*and therefore people?*) prosper
- Water quality should be a priority of any management plan for Taunton Bay
- Nonfishing people understand the fishing industry better

#### *Concerns*

- Unfairness, a major theme—in the current and any proposed regulatory frameworks; for example, if a large corporation were to come in the bay and take seed mussels; also, that perhaps not everyone is being fairly represented in the process of developing a bay management strategy (skepticism and wariness on the part of marine-resource harvesters towards “porch seat managers” who know even less about fisheries than does the State and who imagine they could manage the resources in the bay that fishermen depend on to make a living)

- That individual leases would be given in separate areas of Taunton Bay (don't do it)
- That mussel dragging would ever be unrestricted (don't allow unrestricted mussel dragging)
- UMCCAR
  - Effluent discharged into the bay with chlorine, other chemicals (?)
  - Impact on eelgrass?
  - Questions of scale, more and more fish grown leading to more development, more pollution?
  - Funding is pouring in, how much power will they have?
- Fisheries decision-makers do not appear to put enough consideration towards the economic impacts their decisions have on real people doing real things. That is, decisions made "from above" cause hardworking local people (who perhaps have a long family history of and pride in their traditional lifestyle) to lose their livelihood, resulting in personal bankruptcy and the collapse of small companies, in short, social disintegration
- Loss of livelihood
- Loss of tradition
- Little working access to the water
- Confidentiality of economic information provided
- If we take care of the bay, benefits might not be local (design mechanisms to promote local economies, reward reinvestment and efforts)
- Management decisions for Taunton Bay might be made by locals who know little about the bay's resources
- Quality, ecosystem health, (trash, faulty septic systems, clear cutting, erosion, recreation, etc.)
- Bay management model may not include fishermen (*Really?*)
- People aren't being represented
- Draggers are concerned about the loss of harvestable area statewide, and not being able to survive, driven into areas because of lobstering pressures

### *Ideas*

- Joint lease site for experimental mussel seed
- If seaweed-harvesting conflicts can't be solved at the state level (preferable), try resolve at the local bay level
- State needs to resolve seaweed-harvesting issues, don't try to work it out at the local bay level
- Experimental harvesting of mussels by hand or by dragging
- Make eelgrass zones no dragging zones
- Put in access point at old L.A. Gray
- Seed harvesting permit decisions go through a committee (not just the Commissioner)
- Track the economic worth of harvesting in Taunton Bay (including seed harvesting)
- Confidentiality of economic information would have to be provided
- Use proceeds of fisheries in the bay to fund research in the bay
- Manage so locals receive benefits, the benefits of taking care of the bay are open to taking by fishermen from other areas (relates to rewarding effort, the idea of local resource users managing their own resources, staying within your own resources, not going to some other place, encourages responsibility and sustainability)
- Develop a clear process for TTBS, for making management decisions *within the organization*, (as well as for the study goal of making management recommendations)
- Develop a conflict resolution process to deal with these issues in Taunton Bay
- Rebuild trust within the project
- Use a different type of outreach to fishermen

## **Landowners Focus Group**

### *Hopes*

- Healthy water quality
- Abundant wildlife
- Sustainable jobs
- Inclusive local voice in bay management
- As natural as possible
- With respect for marine harvesters
- \*Balance
- Limits on development
- Keep the bay scenic
- Education for property owners on shoreland management (e.g. erosion)
- Conserve the bay
- Understand the bay

### *Concerns*

- Industrial development/scale of development for a small bay
- Erosion
- Can we ever know enough to adequately protect/manage the bay?
- Pesticides/herbicides on blueberries
- Motorized traffic (jet ski doos)
- Noise pollution
- Overharvesting of marine species
- Too much aquaculture
- Development that pollutes (e.g. septic, fertilizer)
- Loss of wildlife habitat
- Damage to ecosystem
- Water access (few access points and too many users)
- Regulatory decisions made without sufficient information (ecological, social, economic)
- Inappropriate development
- Lack of coordination between towns
- Inadequate monitoring of shoreland zoning

### *Ideas*

- More monitoring (therefore more money)
- Agree on a vision for the future
- Agree on management principles
- Teach landowners to be good stewards and make it easy
- Educate all bay users on how to take care of the bay
- Coordination among towns
- Property owners and fisheries folks learn to talk to each other AND work together
- Manage the bay as an ecosystem

## **Common Ground**

What hopes, ideas and concerns are shared across all groups?

- Property owners and fishery folks learn to communicate and work together
- Education on all fronts (everyone's a teacher)
- Make it easy for people to be good stewards, reward efforts
- Questions about aquaculture operations on Taunton Bay
- More monitoring as a source of jobs as well as information



- Good management plan
- Sustainability, both ecological and economic

Roger Fleming, a member of the Taunton Bay Study Governance Working Group from the Conservation Law Foundation, summed up the areas of agreement reached at the meeting very well.

For example (and I don't mean to be inclusive), everyone wants the bay to be managed for both ecological sustainability and economic sustainability, everyone saw the need for education of both landowners and resource users about how to take care of the bay and be good stewards, and everyone wants a more inclusive management process and for everyone to understand each other's views better. From the perspective of someone who does not live or work directly on the bay, I was very impressed by the amount of common ground I saw in the concerns and hopes for the bay, and the level of recognition for others' needs and viewpoints.

### **DMR Listening Session: Harvesting and Fisheries Management in Taunton Bay**

January 19, 2006, 7:00 pm Franklin Community Center

Submitted by Barbara S. Arter, BSA Environmental Consulting

On January 19, 2006, a Listening Session was held at the Franklin Community Center to discuss harvesting and fisheries issues in Taunton Bay. The meeting, which was held in conjunction with the Taunton Bay Study, had two major objectives: 1) to begin a dialogue between harvesters and the Friends of Taunton Bay (FTB) for the purpose of providing input into the Taunton Bay Study and 2) to gather input and information for the development of MDMR's forthcoming Taunton Bay Comprehensive Resource Management Plan. John Sowles, MDMR, was present to hear from harvesters on a variety of issues for the plan. Barbara S. Arter, BSA Environmental Consulting, facilitated the meeting and Vanessa Levesque, MSPO, was present to answer questions about the Bay Management Study and to assist with facilitation and notekeeping.

#### **Attendance**

There were 28 individuals representing 6 towns in attendance at the meeting. Of the 28 participants, 20 were harvesters and 8 were nonharvesters (riparian landowners, selectmen, recreational users). Table 1 lists the number of harvesters by town of residence. The majority of harvesters in attendance (70%) reside in the towns of Sullivan (35%) and Hancock (35%). Of the 8 nonharvesters in attendance, 7 were from Franklin and 1 was from Sullivan.

Table 1. Number of Harvesters by Town of Residence.

<b>Town of Residence</b>	<b>Number of Harvesters</b>
Sullivan	7
Hancock	7
Franklin	3
Cherryfield	1
Milbridge	1
Eastbrook	1

On the attendance sheet, participants were asked to identify their fishery. Of the 20 harvesters present, 12 indicated that they harvested only 1 species, 7 harvested 2 species, and 1 indicated that he harvested all species. Table 2 lists the number of participants in each fishery represented at the meeting. The two fisheries with the highest number of representatives were lobster (31%) and clam (19%).

Table 2. Number of Harvesters per Fishery.

<b>Fishery</b>	<b>Number of Harvesters</b>
Lobster	8
Clam	5
Mussel	3
Scallop	2
Elver	2
Worm	2
Smelt	1
Seaweed	1
Alewife	1
All	1

### **Pre-Meeting Discussions**

Since many harvesters arrived 30-40 minutes ahead of meeting time, the consultant had an opportunity to introduce herself and discuss the purpose of the meeting with the harvesters one-on-one. All of the harvesters were eager to share their fishery concerns and all of them had a very positive attitude. When asked how they found out about the meeting and why they came, several answered that they had heard about the meeting via word-of-mouth and that they came because they heard that someone was “shutting the fishery down” and they were greatly concerned.

### **Meeting: Part I**

After introductions were made, Vanessa briefed the group on the state’s Bay Management Study and Barbara discussed the Taunton Bay Study and the Economic Assessment Report. The remainder of the meeting was dedicated to the MDMR Taunton Bay Comprehensive Resource Management Plan.

The following is a list of issues raised in Part I of the meeting:

1. A participant asserted that the “Colonial Ordinance” suggests that the local fishery belongs to the town. Who owns a local fishery? The town or state? It was agreed that this needed investigation.
2. John Sowles discussed how the moratorium legislation requires that the moratorium extend to 2008 and that MDMR must propose a Comprehensive Resource Management Plan for Taunton Bay by 2007.
3. There is concern that Friends of Taunton Bay and MDMR are advocating to shut down the fishery in Taunton Bay.
4. TB Pilot Study will generate many maps and data. The question is what will data/maps show? And how will the information be used.
5. For the Resource Plan, MDMR is seeking local knowledge: What used to be harvested, where, the quality, quantity, etc. How does it compare with today?
6. The town of Sullivan has a shellfish ordinance and as such, they control the distribution of their shellfish licenses. However, Franklin and Hancock do not have such an ordinance and as a result, harvesters from other towns can harvest in their flats. It was generally agreed that the three towns should develop a 3-town ordinance for the bay that is locally controlled and not influenced at the state level. Towns should also consider becoming part of a larger Frenchmen Bay Ordinance.
7. Clamflats could be managed and the towns could work together to rotate flat harvesting and possibly establish a clam flat seeding program.
8. Although clams can and should be managed, most agreed that worms should be “left alone” and allowed to go through their natural cycle.
9. Any management plan created for the bay should be overseen by the towns and not by conservation organizations.
10. Is there a problem with the fisheries in Taunton Bay? Is there a need to manage, other than what is currently done? Why manage? Some concerns that could be addressed in a management plan are:
  - a. Many feel that worms are undersized but some argue that that is the natural cycle. Are harvesters OK with waiting out the cycle?
  - b. Some harvesters feel that the West shore had more worms. Why?

- c. Concerns about septic pollution
11. Most agreed that cooperation is needed for any form of management at both local and state level.

### **Meeting: Part Two**

The second part of the meeting was dedicated to working with harvesters individually and in small groups to obtain individual feedback about where they harvest and trends relating to quality and quantity. Harvesters were encouraged to draw on large maps to indicate their fishery.

Although the mood of the first part of the meeting was slightly antagonistic, the mood in the second part of the meeting was very conciliatory. Harvesters were very willing and proud to share information about their livelihood. The atmosphere was genuine and convivial. Upon leaving, most harvesters said they were glad the meeting was held and they were looking forward to the “next one.”

### **Conclusions and Recommendations:**

1. It is apparent from both previous interviews and the atmosphere of this meeting, that most harvesters do not feel antagonistic about sharing information if they are approached one-on-one or in small group. In fact, all of the harvesters who had been interviewed previous to the meeting (phone interview for the Economic Report) had a positive attitude toward this meeting. Antagonism appears to surface primarily only in the group setting. Therefore, it is recommended that the best way to communicate or establish a relationship with harvesters is individually or in small group.
2. Since most harvesters left the meeting with a positive attitude and desire for more meetings, more interaction in the form of interviews, listening sessions, pot luck suppers, etc, is recommended.
3. Most harvesters and local community members have an extremely negative attitude regarding the motives of Friends of Taunton Bay (FTB). Most of these individuals believe that FTB would like to close the bay to all harvesting activities and that FTB has an adversarial agenda and inappropriately strong influence at the state level. Therefore, in order for FTB to be an effective leader in bay management and to gain respect in the community, they should develop a campaign that creates a better image for the group. Some examples of steps that the organization could take to enhance their standing in the community include:
  - a. The Executive Committee should review its policy and FTB’s stand on the dragging moratorium. It is unclear if the organization, or just a few individuals, supports the moratorium. This policy should be made clear to the public.
  - b. Enhance newspaper coverage that clearly states FTB mission and agenda.
    - Advertise ALL meetings in the newspaper and invite the public to attend.
    - Host presentations that are inclusive to harvesters (e.g., “Alewife Harvesting in Taunton Bay”)
4. If the state decides to adopt Bay Management principles statewide, then state agencies should initiative, encourage, and support the creation of multi-stakeholder bay coalitions. These coalitions would be comprised of state, federal, and municipal government representatives, conservation organizations, harvesters, industry, and residential landowners. They would act as a vehicle to solve problems, provide input to regulating agencies, and provide information transfer and outreach. □

### **► COORDINATING COMMITTEE, EXECUTIVE SUMMARY**

Prepared by: Frank Dorsey, Coordinating Committee Chair

The study is organized into five work groups: Economics, Governance, Indicators, Mapping/Information and Outreach, coordinated by monthly meetings of work group representatives. Overall policy and budget decisions were made by the Friends of Taunton Bay Executive Committee.

Participants representing the five Taunton Bay Study workgroups met monthly from April 2005 through December 2006 to report on completed, in-progress and planned activities, thus keeping mutually informed on the entire project and avoiding duplication of effort. The group met in Hancock with a total of 59 attendees. Meetings totaled more than 150 hours of person time exclusive of travel from as far as Deer Isle and Augusta. Attendees came from 10 towns and at least 14 organizations. The group had expertise in mapping, land conservation, economics, several fisheries, statistics, local history, biology, water quality, organizational change, meeting facilitation, photography,

mediation and other study-related fields. Attendees reported back to their own work groups and to the State so that all interested parties were fully aware of activities.

The Coordinating Committee also suggested policies to the Friends of Taunton Bay Executive Committee, leading to the following executive committee-approved policies for TTBS confidentiality and publications:

**Confidentiality:** All material or information provided to the Taunton Bay Study will be considered public information. It is an obligation of each person involved in the Study to make this known to interviewees

**Publications:** Taunton Bay Study draft reports and State of Maine deliverables will be circulated to the appropriate group(s) in time for a one-week period for comments to the author(s). All comments will be acknowledged, and if not incorporated in the report, minority reports and/or comments will be included if submitted within one week of acknowledgement.

Since the bulk of the study work was performed within the workgroups, the Coordinating Committee proved useful as a forum, a vehicle for communication and as a mechanism to avoid redundant efforts by workgroups with overlapping areas of interest. □